WHAT IS CLAIMED IS:

1.   A method of processing a transmitted digital media data stream comprising a stream of data elements, the method comprising steps of:

(a)   receiving the data stream;

(b)   holding each data element that is received prior to an end of a time period in a buffer until the end of the time period, at which time the data element is released for playout;

(c)   monitoring a loss rate at which data elements in the data stream are not received by the end of their respective time periods; and

(d)   adjusting a duration of the time period based upon the loss rate.

2.   The method of claim 1 wherein adjusting step (d) comprises increasing the duration of the time period if the loss rate is above a first threshold.

3.   The method of claim 1 wherein adjusting step (d) comprises setting the duration of the time period at a first value if the loss rate is relatively low, and setting the duration at a second value, greater than the first value, if the loss rate is relatively higher.

4.   The method of claim 1 wherein adjusting step (d) comprises decreasing the duration of the time period if the loss rate is relatively low, and increasing the duration if the loss rate is relatively higher.

5.   The method of claim 1 wherein adjusting step (d) comprises:

(d)(i)   if the loss rate is lower than a first threshold, maintaining the duration of the time period at a present value; and

(d)(ii) if the loss rate is greater than the first threshold, increasing the duration of the time period by a first amount.

6.   The method of claim 5 wherein step (d)(ii) comprises increasing the duration of the time period by a first amount that is substantially equivalent to a duration of the media represented by one data element.

7.   The method of claim 5 wherein adjusting step (d) further comprises:

(d)(iii) if the loss rate is greater than a second threshold that is greater than the first threshold, increasing the duration of the time period by a second amount that is greater than the first amount.

8.   The method of claim 7 wherein step (d)(ii) comprises increasing the duration of the time period by a first amount that is substantially equivalent to a duration of the media represented by one data element and wherein step (d)(iii) comprises increasing the duration of the time period by a second amount that is substantially equivalent to twice the duration of the media represented by one data element.

9.   The method of claim 1 wherein adjusting step (d) comprises:

(d)(i)   if the loss rate is lower than a first threshold, decreasing the duration of the time period;

(d)(ii) if the loss rate is greater than the first threshold but less than a second threshold, maintaining the duration of the time period at a present value; and

(d)(iii) if the loss rate is greater than the second threshold, increasing the duration of the time period.

10.   The method of claim 1 wherein the data elements are frames of encoded data.

11.   The method of claim 1 wherein the time period begins for each transmitted data element when the data element is sent by a transmitting end.

12.   A method of estimating an unreceived data element of a transmitted digital media data stream comprising a stream of data elements, the method comprising steps of:

(a)   receiving, by an adaptive jitter buffer, a subsequent data element that follows the unreceived data element in the data stream; and

(b)   estimating, by the adaptive jitter buffer, a parameter of the unreceived data element based on the received subsequent data element.

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13.   The method of claim 12 wherein receiving step (a) comprises receiving a plurality of subsequent data elements that follow the unreceived data element in the data stream, and wherein estimating step (b) comprises estimating a parameter of the unreceived data element based on the received subsequent data elements.

14.   The method of claim 13 wherein estimating step (b) comprises estimating a parameter of the unreceived data element based on the received subsequent data element and on a prior data element that precedes the unreceived data element in the data stream.

15.   The method of claim 12 further comprising a step (c) of:

    (c)   holding received data elements in a buffer.

16.   The method of claim 15 wherein holding step (c) comprises holding each received data element in the buffer until an end of a time period, at which time the data element is released for playout.

17.   The method of claim 16 further comprising a steps of:

    (d)   monitoring a loss rate at which data elements in the data stream are not received by the end of their respective time periods; and

    (e)   adjusting a duration of the time period based upon the loss rate.

18.   The method of claim 17 wherein adjusting step (e) comprises increasing the duration of the time period if the loss rate is above a first threshold.

19.   The method of claim 18 wherein adjusting step (e) comprises increasing the duration of the time period by an amount that is substantially equivalent to a duration of the media represented by an integer number of data elements if the loss rate is above the first threshold.

20.   The method of claim 18 wherein adjusting step (e) further comprises decreasing the duration of the time period if the loss rate is below a second threshold that is lower than the first threshold.

21.   The method of claim 17 wherein the time period begins for each transmitted data element when the data element is sent by a transmitting end.

22.   The method of claim 12 wherein the data elements are frames of encoded data.

23.   A system of estimating an unreceived data element of a transmitted digital media data stream comprising a stream of data elements, the system comprising:

        a jitter buffer adapted to receive a transmitted digital media data stream and to hold each received data element until an end of a time period, at which time the data element is released for playout; and

        a lost data element recovery mechanism adapted to estimate a parameter of an unreceived data element based on a received subsequent data element that follows the unreceived data element in the data stream.

24.   The system of claim 22 wherein the lost data element recovery mechanism is adapted to estimate a parameter of the unreceived data element based on a plurality of received subsequent data elements that follow the unreceived data element in the data stream.

25.   The system of claim 23 wherein the lost data element recovery mechanism is adapted to estimate a parameter of the unreceived data element based on the received subsequent data element and on a prior data element that precedes the unreceived data element in the data stream.

26.   The system of claim 23 further comprising:

        a controller adapted to monitor a loss rate at which data elements in the data stream are not received at the jitter buffer by the end of their respective time periods and to adjust a duration of the time period based upon the loss rate.

27. The system of claim 26 wherein the controller is adapted to increase the duration of the time period if the loss rate is above a first threshold.

28. The system of claim 27 wherein the controller is adapted to increase the duration of the time period by an amount that is substantially equivalent to a duration of the media represented by an integer number of data elements if the loss rate is above the first threshold.

29. The system of claim 27 wherein the controller is further adapted to decrease the duration of the time period if the loss rate is below a second threshold that is lower than the first threshold.

30. The system of claim 26 wherein the time period begins for each transmitted data element when the data element is sent by a transmitting end.

31. The system of claim 23 further comprising:
a decoder adapted to receive data elements from the jitter buffer and to decode the data elements to produce decoded data elements representing media samples.

32. The system of claim 23 wherein the media data stream is an encoded audio data stream comprising a plurality of audio data elements, each representing a portion of a transmitted audio session.

33. The system of claim 23 wherein the data elements are frames of encoded data.